CUSTOMER NUMBER **25268**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Jerry Brownstein et al.	Attorney Docket No: BROW0005
Serial No:	10/646,944	Group Art Unit: 1771
Filed:	August 21, 2003	Examiner: Cole, Elizabeth
Title:	LOOSE FIBER ADSORBENT	

DECLARATION

Bellevue, Washington 98004
November 14, 2005

TO THE DIRECTOR OF THE PATENT AND TRADEMARK OFFICE:

The following declaration of Jerry Brownstein is submitted as part of a response to an Office Action dated August 12, 2005.

1. I, Jerry Brownstein, have been professionally involved in the textile industry for almost 35 years. The textile industry produces a large amount of fabric and textile waste each year. This waste includes used clothing that is too damaged for reuse, as well as manufacturing wastes. Shredding such waste can yield unsorted recycled fibers; however, the volume of recycled fibers available has generally exceeded the demand for such recycled fibers. Recycled fibers are generally regarded as a lower quality material than virgin fibers. Based on my experience in the textile industry, I began looking for additional uses for recycled fibers.

2. Further, I am a co-inventor of the subject matter described and claimed in the above-identified patent application, U.S. Serial No. 10/646,944, and as such, am familiar with the subject matter disclosed and claimed therein. I am also familiar with a commercial embodiment based on the invention described and claimed in that patent application, which is sold under the trademark X-TEX®.

3. My co-inventors and I conceived of using recycled fibers as an adsorbent for hydrocarbons. We developed a prototype absorbent product based on such recycled fibers and proceeded to test the absorption properties of the prototype adsorbent. Our prototype absorbent was developed by shredding used clothing, and comprised a mixture of synthetic fibers and natural fibers (approximately 94% synthetic fibers and about 6% natural fibers). We specifically presorted textile waste to limit the amount of natural fibers in our adsorbent product. During our testing, we compared the performance of our prototype absorbent with other commercially available absorbent products. We were extremely surprised by the test results, which indicated that our recycled adsorbent product *exceeded* the absorbance performance of commercially available absorbent products that were based on chemically similar adsorbent fibers (i.e., virgin synthetic fibers such as polypropylene, one of the

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most widely used synthetic fiber adsorbents). We had hoped to find that our prototype adsorbent would perform almost as well as commercially available absorbent products (recognizing that recycled fibers are often of lower quality than virgin fibers and may have lower absorbance), and because it was based on recycled fibers, we hoped to be able to offer a competing product at a lower cost. During the course of our research, we determined that the recycled synthetic fibers included in our prototype product were actually superior adsorbents, compared to virgin synthetic fibers. We determined that this unexpected superiority in absorbance was based on the fact that synthetic fibers in our prototype material were delustered. Indeed, most synthetic fibers used in the textile industry are delustered. While delustering is well-known in the textile industry (because delustering can be used to enhance the aesthetic qualities of a textile), the absorbent fiber industry has not recognized that delustering provides any benefit with respect to producing a superior adsorbent. Indeed, it appears that the adsorbent fiber industry considers delustering to be an additional manufacturing step that does not provide a benefit with respect to producing a synthetic fiber intended to be used as an absorbent. Significantly, it appears that no one else has determined that delustered synthetic fibers are a superior adsorbent, compared to virgin synthetic fibers.

4. The test data reproduced below were generated by comparing our prototype absorbent (in bulk form, i.e., a mass of about 94% delustered synthetic fibers and about 6% natural fibers) with bulk virgin polypropylene fibers (a commercial product used for filling adsorbent socks used in absorbent booms). Varying amounts of oil were introduced into 300 mL of water, and the effectiveness of each absorbent at removing the oil from the water was determined, as indicated below.

Weight of oil added to the water sample(g)	**% of oil Adsorbed by Virgin Synthetic Fibers**	**% of oil Adsorbed by Delustered Synthetic Fibers**
5.0	98.3	99.0
1.0	97.4	98.3
0.5	89.1	97.4
0.25	52.8	94.4

Thus, our prototype bulk adsorbent product was found to have a significantly superior absorbance, compared to the bulk adsorbent made with virgin synthetic fibers with respect to removing relatively smaller amounts of oil from water. Both products were effective at removing relatively larger amounts of oil from water.

These results are significant. The superiority of our prototype adsorbent (comprising synthetic fibers generated from fabric/textile scrap) over adsorbents based on virgin synthetic fibers was particularly unexpected. The above data indicate that an absorbent material based on recycled

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delustered synthetic fibers (as used in our prototype material) is approximately 44% more effective at water polishing (i.e., removing relatively small amounts of oil from water) than absorbent products based on virgin synthetic fibers.

5. In summary, the claims in the above-identified patent application, U.S. Serial No. 10/646,944 (i.e., claims directed to an absorbent material including recycled synthetic fibers generated by shredding synthetic textile waste), define a more effective adsorbent material (particularly for removing relatively low concentrations of oil from water) than does an absorbent material comprising virgin synthetic fibers. This superiority represents an unexpected result. It should be recognized that the removal of small amounts of oil from water (generally referred to as water polishing) represents a particularly challenging task, with widespread application. Water polishing is a final treatment step in many wastewater treatment facilities before treated wastewater is discharged into the environment. Thus, the superiority of delustered synthetic fibers, as indicated by the above test results, provides a significant advantage for solving real-world wastewater treatment problems.

6. I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: Nov. 17, 2005

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